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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/630,543

07/29/2003

James Ma

15758-003001

7496

26181

7590

09/21/2004

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EXAMINER

CHANG, DANIEL D

ART UNIT

PAPER NUMBER

2819

DATE MAILED: 09/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/630,543

Applicant(s)

MA, JAMES

Examiner

Daniel D. Chang

Art Unit

2819

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3-6 and 8-20 is/are rejected.
- 7) ☒ Claim(s) 2 and 7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 7/29/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### ***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the FIFO or RAM, set forth in claims 9, 10, 15, and 16 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

Claims 1, 5, 7, 12, and 20 are objected to because of the following:

Claim 1, lines 9-10, "the receiving register" appears to be --the destination register-- since it lacks antecedent basis.

Claim 5, lines 2-3, "the receive register" appears to be --the destination register-- since it lacks antecedent basis.

Claim 7, line 2, "the receive register flip-flops" appears to be --a plurality of destination register flip-flops-- since it lacks antecedent basis.

Claim 12, line 18, "a destination register" appears to be --the destination register -- since it is a second occurring recitation.

Claim 20, line 2, "an output of the destination register" appears to be --an output of the source--.

Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 112***

Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

On line 14, the recitation, "a **like** plurality of delay elements" renders the claim indefinite. See MPEP 2173.05(b)F.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-6, and 8-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Cross (US 5,602,878).

Regarding claim 1, Cross discloses, in figs. 3-4, a method for transferring multiple bits of data across asynchronous clock domains comprising the steps of:

detecting a change in a status bit of a data word being transferred from a source in a source clock domain (320) to a destination register (305) in a destination clock domain (322), the source clock and destination clock being asynchronous (col. 1, lines 7+);

sampling the detected change in reference to a change window, the change window sized to encompass all bits of the data word (col. 7, lines 57+);

selecting (304) a stable input (col. 6, lines 27+; col. 7, lines 2+) for each bistable circuit of the destination register based on whether the detected change in the status bit is likely to produce metastability in the destination register.

Regarding claim 3, Cross discloses, in figs. 3-4, toggling the status bit (col. 6, lines 66+) for each word of data to be transferred to the destination clock domain.

Regarding claim 4, Cross discloses, in figs. 3-4, connecting each output of the source (320) to an input of a receive register (302, 304, 305) which is comprised of a group of multiplexers (304) each coupled to an input of a corresponding bistable circuit (305), each multiplexer configured to receive a signal selecting the stable input (col. 6, lines 66+).

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Regarding claim 5, Cross discloses, in figs. 3-4, outputting a control signal (311) to select the stable input for each bistable circuit of the destination register if transitions in the change window are likely to induce metastability in the receive register (col. 7, lines 2+).

Regarding claim 6, Cross discloses, in figs. 3-4, selecting (304) one of two inputs in response to the monitoring circuit control signal for storage in the flip-flop (col. 6, lines 66+).

Regarding claim 8, Cross discloses that the bistable circuits include one of flip flops and latches (col. 1, lines 20+).

Regarding claim 9, Cross discloses that the source includes a FIFO (col. 1, lines 20+).

Regarding claim 10, Cross discloses that the source includes a RAM (col. 1, lines 20+).

Regarding claim 11, Cross discloses, in fig. 3, transferring a data word from the source to a plurality of destination registers (col. 1, lines 20+).

#### ***Allowable Subject Matter***

Claims 2 and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 12 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Claims 13-20 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

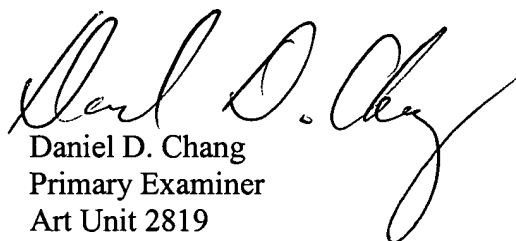
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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel D. Chang whose telephone number is (571) 272-1801. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael J. Tokar can be reached on (571) 272-1812. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Daniel D. Chang  
Primary Examiner  
Art Unit 2819

DC

**DANIEL CHANG  
PRIMARY EXAMINER**